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Energy & Massachusetts

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Executive Office of Energy Resources

Edward J. King, Governor

Diversified fuel supplies, stabilized utility costs, applications of new technologies and aggressive conservation are the guidelines I use to measure the success of our policies and commitment to developing Energy and Massachusetts.

Edward J. King

Edward J. King, Governor

Paul Revere School in Revere uses oil more efficiently since applying state Energy Office grant money to improve its heating system and insulate the attic.

If you want something done right, do it yourself. That's exactly what we did when Massachusetts—like much of the nation—faced energy challenges severe enough to permanently alter the quality of our lives.

None of us will forget the energy shock that began in 1973. It was "the energy crisis". . . complete with mile-long gas lines, oil production cutbacks and staggering heating bills.

We are proud to say we are now winning the battle for control of our energy future. Through the leadership of Governor Edward J. King and the state Executive Office of Energy Resources, Massachusetts has in place the most aggressive self-help energy program in the country.

From no-cost home conservation improvements, to more efficient use of energy in the workplace, to weatherizing local schools and hospitals, to controlling energy losses in state buildings and applying new technologies, Massachusetts can boast about some exciting results:

- Heating oil consumption in 1980 was down almost 20% from 1978.
- Fuel adjustment charges (which reflect the escalating price of fuel purchased by utilities) are now stablizing for the first time since 1973. For many ratepayers, they are even going down.
- Since Governor King's coal conversion program began, utility coal use has increased nearly 1,400%, saving consumers millions of dollars each year and at the same time maintaining—or even bettering—the environmental standards set for clean air.
- More than 60,000 consumers have participated in the state-sponsored "energy audit" program and more than 90% of them have made conservation improvements in their homes.
- Wood, wind, solar and other renewable energy resources now account for 6.3% of this region's energy mix. Predictions indicate that by 1985 that figure will be 13%.
- 18 million gallons of low-cost "Kennedy Oil" have been purchased and distributed to low-income and elderly citizens.
- Over 2,500 schools, hospitals and other public buildings have received technical and financial help with energy conservation improvements.
- Over 500 public housing units for the elderly have been designed with "passive solar" technology.

A recent study shows that a dollar invested in conservation improvements at home gives a better return than putting that same dollar in a savings account or money market fund. So when you reduce the loss of energy in your home through weatherization and other conservation techniques, you not only increase its value, but you also make a sound financial investment.

Beginning Where We Live

To help consumers determine where their homes are losing heat and how much it will cost to plug up the leaks, Governor King and the State Legislature created the **Energy Conservation Service (ECS)** in 1980. During the first year alone, over 60,000 households requested the low-cost, $10 or less, basement-to-attic energy check-up and other services offered by utilities through the state's program. Projections indicate that by the end of the five-year program, over 400,000 homes will have had an energy audit. Consumers who make the recommended improvements are reducing their energy bills by as much as $500 to $750 each year.

Knowing what to do to conserve in the home is only half the battle; getting help to **finance the improvements** is the other half. For this reason, the Energy Office enlisted the support of banks and, in areas like Springfield and Fitchburg and counties like Berkshire and Hampshire, many are now offering reduced-rate loans to their customers who have received the ECS audit. Product discounts, tax credits and utility incentives, all part of the ECS program, are helping cut costs.

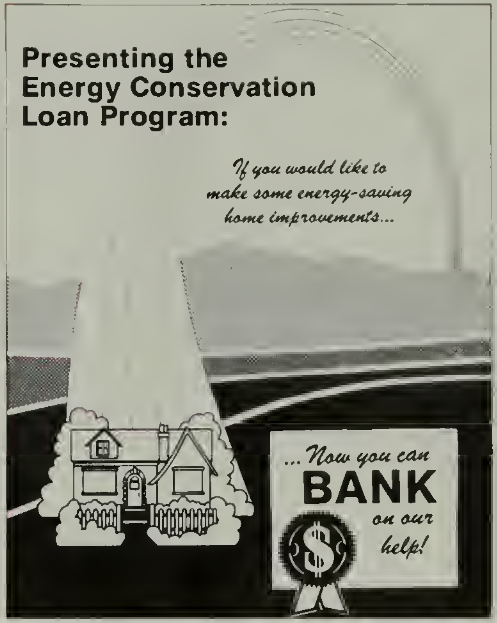
Some consumers call it self-help weatherization; others call it home improvement. Either way, everyone saves money year after year.

Energy Conservation Service

Massachusetts Office of Energy Resources
Edward J. King, Governor

Consumers know the ECS logo represents cost-saving programs of the Energy Conservation Service.

In cooperation with the Hampshire County Energy Resource Center, 15 Hampshire County banks promote their energy programs through this newspaper ad.



Presenting the Energy Conservation Loan Program:

If you would like to make some energy-saving home improvements...

... Now you can **BANK** *on our help!*

Courtesy: *Daily Hampshire Gazette.*

With Special Help For Our Needy

Sensitive to the special circumstances facing our elderly and those on fixed incomes, the state administers a federal- and state-funded fuel assistance program which supplies critically needed funds to pay for heat during the long, hard winter months. To help stretch these fuel assistance dollars Governor King instituted the first-in-the-nation practice of **purchasing oil at a discount** and distributing it as a part of the state fuel assistance program. This discount oil was made available by the Citizens Energy Corporation, headed by Joseph P. Kennedy II. To date, the state has purchased over 18 million gallons of this low-cost "Kennedy Oil."

Reducing The Energy Bills We Pay With Our Taxes

Now in its third year, the "Kennedy Oil" program, coordinated by Governor King and Joseph P. Kennedy II, brings low-cost oil into the homes of low-income and elderly citizens.

While initiating energy programs that encourage conservation in the home, Governor King also recognized that something had to be done about public buildings. Many of these facilities—including schools, hospitals, libraries, and police and fire stations—waste more than energy. They eat through local tax revenues almost without control.

State Grants To Start Conserving

In the fall of 1979, Massachusetts took a giant step and became one of the first states in the country to appropriate state funds for energy improvements in **public buildings.** Since that time, $24.5 million has been distributed for cost-effective improvements in town, city, and state buildings.

Grants have been awarded for feasibility studies, technical assistance, audits, and conservation hardware. Dozens of renewable energy systems have been installed as well, including a solar hot water system for the Greenfield Fire Station, a hydroelectric facility for the Greater Lawrence Sanitary District, and a wind machine is planned for Hull High School. Most of the investments made will pay for themselves in less than two years.

When combined with the smaller, federally-funded schools and hospitals program, also administered by the Energy Office, more than 2,500 facilities across the state have received energy grants—making this program one of the biggest conservation and renewable energy commitments in the country. While our cities and towns struggle with Proposition 2½, these grants are guaranteeing local tax savings on municipal energy bills.

Buying Oil Wisely

Conservation counts, but fuel oil still costs, so the Energy Office put together a first-in-the-country **bidding and bulk purchasing program** to help city and town governments and school districts buy fuel at the lowest price possible. The Energy Office presented local communities with the concept, an outline for the program, and some back-up staff support. The communities did the rest themselves. That's self-help. The first bids were opened in August, 1981, and will save an eleven-community cooperative about $300,000 during the first heating season alone.

Attacking Runaway Utility Bills: Governor King's Plan in Action

In March, 1981, Governor King announced a multi-pronged plan to help stabilize utility costs. It took just a few months for the plan to show evidence of success.

Getting Off Oil With The Coal Alternative

Massachusetts has proven that you can have money-saving coal conversions while maintaining clean air standards. Clean conversions to coal, the foundation of Governor King's energy program, continue to take place at utility power plants in this state faster than anywhere else in the country. The Salem Harbor, Brayton Point, Mt. Tom, Montaup, West Springfield, and Mystic Station conversions are expected to save Massachusetts consumers over $396,340,000 per year on their utility bills, benefitting over 1,475,000 utility customers in Massachusetts.

Governor King and Energy Secretary Joseph S. Fitzpatrick join Guy W. Nichols, chairman of New England Electric System, at ceremony marking Brayton Point's conversion to coal.

Profile of a Coal Conversion: Brayton Point, Somerset, MA.

The economic benefits of converting the Brayton Point power plant are substantial. Some highlights:

*Consumers serviced by Massachusetts Electric (owner of Brayton Point) are saving more than $170 million per year on their electric bills.

*The local economy in the Fall River area has been boosted by the creation of more jobs, both during construction and over the life of the plant.

*The cost of living and doing business in the Massachusetts Electric service area goes down as utility bills go down.

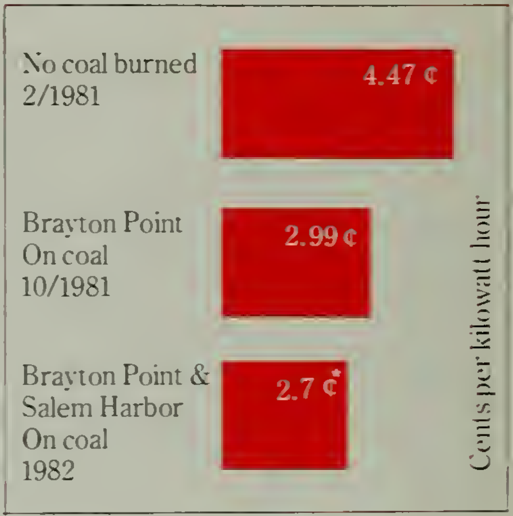
*Tests have shown that Brayton Point is presently burning coal with 26 percent less sulfur dioxide and 33 percent fewer particulate emissions in the air than when it was burning oil. These emission reductions will allow for more money-saving industrial and utility conversions in the area—such as the Montaup power plant, further reducing energy costs and stimulating the local economy.

Oil Conservation Adjustment—Sensible Financing Of Coal Conversions

The Energy Office devised a creative financing mechanism, called the **Oil Conservation Adjustment (OCA)**, that saves the consumer money and at the same time provides the capital for a utility to invest in coal conversion equipment. OCA is the first financing plan of its kind in the country and is being used as a model for the federal government and other states seeking cost-effective means of burning less oil.

Simply put, OCA allows utilities to take a minimum of two thirds of the savings realized from buying and burning coal (versus oil) and use those savings to fund the construction of pollution-control devices necessary for coal burning. The remaining savings go directly to the consumer. When all the pollution-control devices are in place, consumers will get the full financial benefit from the coal conversion.

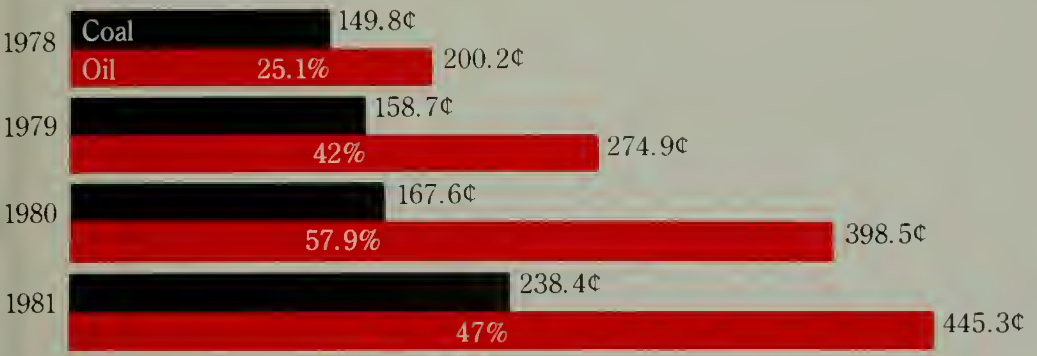
Fuel Adjustment Charge Rates: Massachusetts Electric Company



* Projection

This chart indicates how fuel adjustment charges on energy bills are reduced when power plants buy and burn coal instead of oil.

Cost of Fuel to Massachusetts Utilities
Cents Per Million BTUs (with % difference)



This is proof of savings to Massachusetts consumers when utilities switch to burning coal.

Barge delivers coal to the Brayton Point Power Station in Somerset, location of the first utility coal conversion in Massachusetts.

And To Help Us Save Money

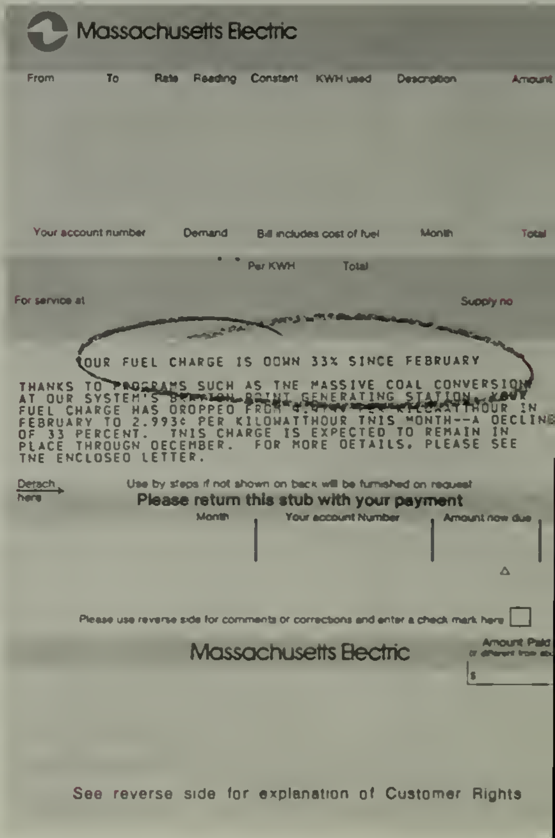
By Executive Order, Governor King created a task force to conduct a comprehensive review of the use of the fuel adjustment clause by electric utilities. Chaired by Energy Secretary Joseph S. Fitzpatrick, and with the critical involvement and support of Massachusetts Fair Share, the task force introduced **fuel adjustment clause reforms** by designing a procedure to insure that utilities buy and burn fuel in the most cost-effective manner.

Governor King also proposed critical **rate reforms**. Actions include supporting, before the Department of Public Utilities, reduced rates for people who use basic amounts of electricity, and a special reduced rate for our elderly and low-income citizens.

All utilities in the state have been required by Governor King to propose **residential conservation incentives** that will help consumers make conservation improvements and save money. For example, Northeast Utilities is offering cash grants and water heater insulation blankets and Boston Edison is planning a weatherization program for public housing.

Participating in Governor King's incentive program for energy savings, consumer looks over energy-saving water heater insulation blanket provided by Northeast Utilities.

In October, 1981, 750,000 Massachusetts customers of Massachusetts Electric received this bill. $12.5 million had already been saved in fuel costs by the Brayton Point conversion.



Massachusetts Electric

From	To	Rate	Reading	Constant	KWH used	Description	Amount

Your account number	Demand	Bill includes cost of fuel	Month	Total
		Per KWH / Total		

For service at
Supply no

YOUR FUEL CHARGE IS DOWN 33% SINCE FEBRUARY

THANKS TO PROGRAMS SUCH AS THE MASSIVE COAL CONVERSION AT OUR SYSTEM'S BRAYTON POINT GENERATING STATION, YOUR FUEL CHARGE HAS DROPPED FROM [illegible] PER KILOWATTHOUR IN FEBRUARY TO 2.993¢ PER KILOWATTHOUR THIS MONTH--A DECLINE OF 33 PERCENT. THIS CHARGE IS EXPECTED TO REMAIN IN PLACE THROUGH DECEMBER. FOR MORE DETAILS, PLEASE SEE THE ENCLOSED LETTER.

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Use by steps if not shown on back will be furnished on request

Please return this stub with your payment

Month	Your account Number	Amount now due

Please use reverse side for comments or corrections and enter a check mark here ☐

Massachusetts Electric

Amount Paid
$

See reverse side for explanation of Customer Rights

Expanding Traditional Resources

Walls of insulating glass, designed by Energy Office architects, provide solar heat for this new elderly housing complex in Braintree.

Massachusetts has an unbeatable combination: indigenous natural resources and a delivery system for state-of-the-art energy technology. Together they are providing practical and cost-effective renewable energy alternatives that are further reducing this state's dependence on imported oil.

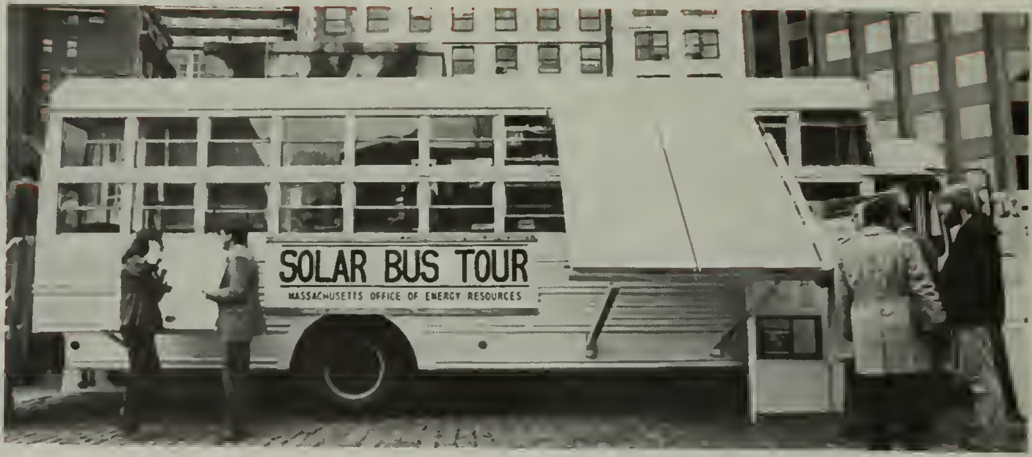
Here Comes the Sun

For years, too many people thought that solar energy couldn't work in Massachusetts, but that is changing. Supported by the fact that the Bay State gets 70% as much sunlight as Florida, the Energy Office is showing consumers how solar energy can work for everyone. Applications of this technology include solar hot water heaters; sun spaces that can supplement 10 to 20 percent of residential heating needs during the winter; photovoltaic cells that produce electricity from sunlight; and passive solar techniques which can provide up to 100 percent of a building's heating requirements.

Massachusetts is the proud creator of the first **passive solar design** program for public multi-family housing units in this country. In 19 elderly housing facilities across the state, over 500 apartment units have been architecturally redesigned with "solar scoops," "trombe walls" and other solar devices to take full advantage of the sun and reduce their total energy costs forever. These housing units will save about 6 million gallons of oil over the lives of the buildings, reduce their energy consumption by almost 60 percent, and create more attractive and functional living spaces as well.

To keep Massachusetts on the solar forefront, the state enacted the second largest **state income tax credit** in the country. Added to the federal tax credit, the state's 35 percent credit can cut the cost of a solar system by 60 percent.

To drive home the message to the average consumer about the easy installation and application of solar alternatives, the Energy Office sponsored workshops and, on its **solar bus**, provided working demonstrations and information about solar alternatives.



This customized "solar bus" visited every region of the state delivering the solar energy message.

Wind, Wood and Water: Making A Difference

Cities, towns, and industries across Massachusetts are taking the energy intiative and are looking more and more to local resources for their needs.

- *Wood* is being burned safely in schools like the Northfield-Mt. Herman School in Northfield, by businesses like the George Bent Company in Gardner and Montgomery Rose in Hadley, and by nearly half of all Massachusetts homeowners who now use wood to meet a portion of their space heating needs.
- *Wind* machines in Massachusetts generate power for single homes and farms. In addition, more than 100 are feeding power into the utility systems we all use.

Courtesy: *The Standard-Times*

This wind energy system is being installed in a private home in New Bedford.

Energy Technologies are Making It In Massachusetts

- *Water* is being harnessed at large and small rivers alike to produce electricity using hydropower. The Great Stone Dam on the Merrimac river in Lawrence is now generating 15 megawatts of power which is sold to New England Electric System, and the Ware river has been developed by Pioneer Hydropower, Inc., to generate 1 megawatt of power for an industrial park.

In total, there are now over 30 megawatts of electrical power being generated by small facilities. In addition, developers have received the commitment of utilities to purchase the estimated 50 megawatts of power which will be generated by their construction of new facilities.

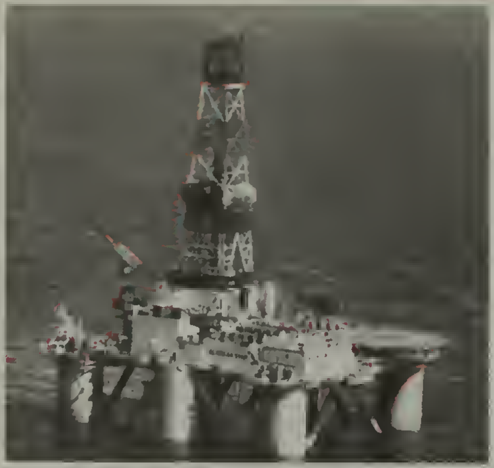
Water flows over the Great Stone Dam toward the Lawrence Hydroelectric facility.

Massachusetts is at the end of the pipeline, quite literally, for both oil and natural gas. But, thanks to the Energy Office, those supplies will soon be much closer.

Using Our Local And Canadian Connections

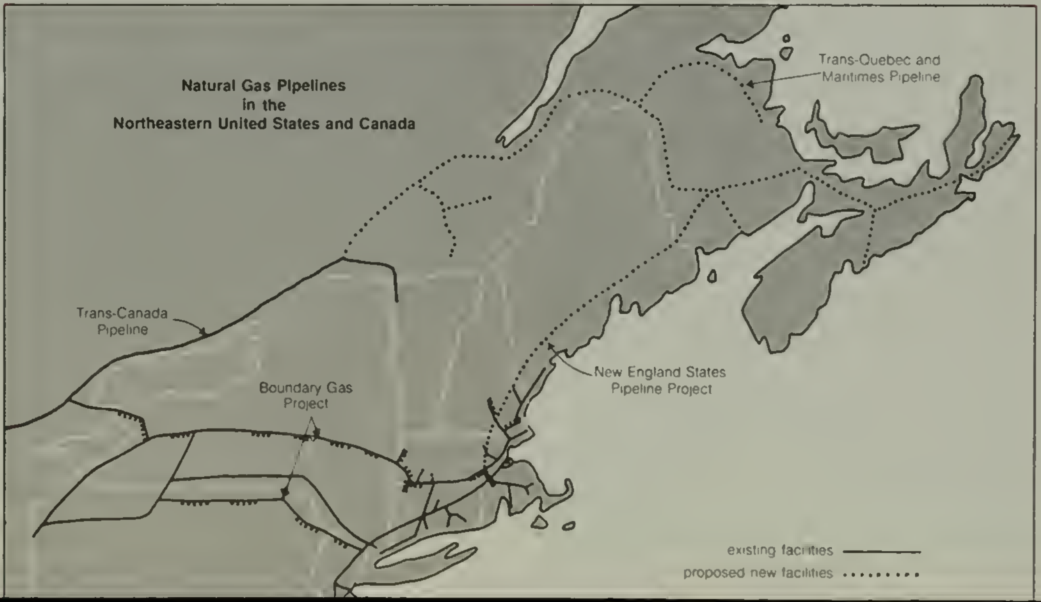
Governor King went to court to break the legal log-jam that lasted for several years and prevented exploratory drilling for oil and natural gas off our coast. Now, with environmental safeguards in place, **drilling on Georges Bank** is proceeding and, if the experts are correct, a natural gas find is likely.

The Energy Office has also worked hard to obtain extra onland **natural gas supplies** from pipeline companies in this country and in Canada to reduce our dependence on imported liquified natural gas (LNG). Both the Boundary Gas and the New England States Pipeline projects will offer substantial new supplies of natural gas to New England. In addition, more supplemental supplies, particularly from underground storage, will be available to consumers and our gas utilities will be better able to share resources with each other.



Alaskan Star, owned by Shell Oil, conducts exploratory drilling for oil and natural gas on Georges Bank.

Increased supplies of natural gas will be available to Massachusetts customers when these Canadian/New England pipeline projects are complete.



Natural Gas Pipelines in the Northeastern United States and Canada
Trans-Quebec and Maritimes Pipeline
Trans-Canada Pipeline
Boundary Gas Project
New England States Pipeline Project
existing facilities
proposed new facilities

Our Industrial Alternatives

As the Massachusetts economy continues to grow, industries have taken the initiative in looking for new energy sources and technologies. Their successes have resulted in increased energy efficiency and decreased energy costs.

In addition to utilizing our nation's coal supplies, alternatives to the exclusive use of oil include **coal-oil mixtures**, **cogeneration**, (using fuel to heat and the steam by-product to generate electricity), **alcohol fuels** and **energy from waste products** (including garbage and wood chips). All of these alternatives strengthen the economic competitiveness of our local industries and provide more jobs and income for thousands of people in Massachusetts.

Energy & Massachusetts: The Foundation is in Place

The tiny town of Monterey in the Berkshires is a good example of how Bay State residents have helped themselves meet the energy challenges of the past years.

In 1980, Monterey was this state's entrant in a joint Canadian- and New England-sponsored **Conservation Days Contest** to see which town, among the six New England states and the six eastern Canadian provinces, could put together the best community program to save the most energy.

Monterey citizens made conservation improvements to their public buildings, weatherized their homes, reduced their driving and generally cut back on their energy consumption for the three-day contest. They did a little bit of everything we have mentioned in these pages, and they did it with determination and enthusiasm. They wanted to do it right, so they did it themselves. And, sure enough, Monterey, Massachusetts, came in **Number One** in New England.

The energy picture for Massachusetts looks a lot brighter these days as a result of innovative and cost-effective solutions we found to the serious challenges of only a few years ago. While proud of our successes, we must use them only as the foundation for the work that lies ahead—to strengthen our commitment to stabilize, and even reduce, energy costs for the people of Massachusetts.

The programs featured in this report are possible only because of the skill, dedication, and zeal of the staff of the Energy Office. To them, special thanks.

Margaret N. St. Clair
Secretary

Through their own energy initiatives and with the leadership provided on the state level, the people of Massachusetts have benefited from and can continue to look forward to increased job opportunities, more business activity and a lower cost of living in the years ahead. Energy and Massachusetts . . . for the future, too.

Edward J. King

Edward J. King, Governor

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